

DIAGNOSTIC APPARATUS AND METHODS FOR A CHEMICAL DETECTION SYSTEM

5

Abstract

A chemical detection system performs controlled exposures to diagnose the pneumatic components and chemical sensors prior to measuring a chemical emission. A control module provides the system control and data processing to perform the diagnosis. The control module manipulates an emission sample retrieval system to provide precise exposure during the diagnostic routines. A sensor interface circuit interrogates the chemical sensors and stores the data for analysis. The chemical sensor exhibits predictable changes in response during predetermined exposure scenarios. By utilizing numerous time domain signal processing techniques, both system and sensor level fault conditions are determined.